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# 2018 Minnesota Wetland & Waterbody Field Survey Report

Enbridge Energy, Limited Partnership • Line 3 Replacement Project

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## EXECUTIVE SUMMARY

Midwest Natural Resources, Inc., Stantec Consulting Services, Inc., and Verdanterra, LLC, hereafter referred to as “field crews,” on behalf of Merjent, Inc. and Enbridge, conducted wetland and waterbody surveys in Minnesota during the 2013, 2014, 2015, 2016, 2017, and 2018 growing seasons. Field crews conducted wetland and waterbody surveys on 35,685.7 acres of the total 36,664.6-acre<sup>1</sup> environmental survey corridor requiring survey (97.3 percent). Field crews did not survey the remaining acres due to access restrictions. If access restrictions are resolved, these areas will be surveyed as required.

Field crews conducted surveys in accordance with technical guidance from the U.S. Army Corps of Engineers and Minnesota Department of Natural Resources. Specific objectives of the surveys were to:

- 1) delineate wetland boundaries;
- 2) categorize wetland community types; and
- 3) locate and characterize waterbodies.

Field crews identified 3,931 wetlands containing 7,698 wetland communities during the 2013, 2014, 2015, 2016, 2017, and 2018 wetland and waterbody surveys. Wetlands primarily included Palustrine Emergent, Palustrine Scrub-Shrub, and Palustrine Forested vegetative communities. Field crews also identified 574 waterbodies, which included Ephemeral, Intermittent, and Perennial types.

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<sup>1</sup> Areas no longer requiring surveys are not included within the total environmental survey corridor acreage calculation.

## **1.0 INTRODUCTION**

The environmental survey corridor encompasses all past and present mainline and access road environmental survey corridors. It extends from the Minnesota-North Dakota border, near the Town of Mattson, to the Minnesota-Wisconsin border near the City of Wrenshall. The environmental survey corridor crosses the following Minnesota counties: Kittson, Marshall, Pennington, Red Lake, Polk, Clearwater, Hubbard, Wadena, Cass, Crow Wing, Aitkin, St. Louis, and Carlton (refer to Figure 1-1). The average width of the mainline environmental survey corridor is 300 feet, with a range of 250 to 750 feet. Access road environmental survey corridors range in width from 60 to 100 feet wide.

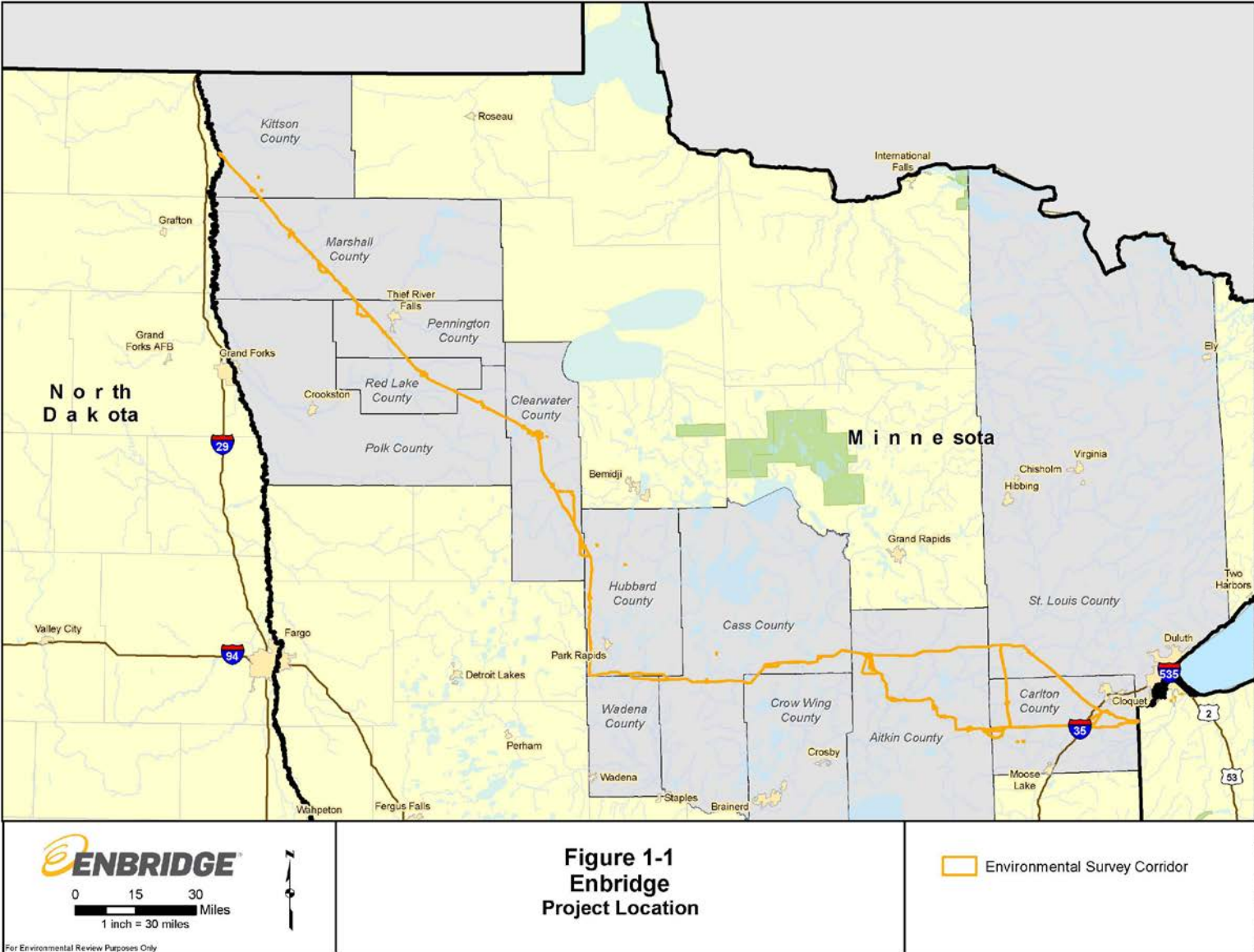
### **1.1 PURPOSE OF SURVEYS**

The purpose of the wetland and waterbody field surveys was to identify aquatic resources within the environmental survey corridor for use in route planning and evaluation, impact analyses, and water resources permitting. The objectives of the wetland and waterbody surveys were to:

- 1) delineate wetland boundaries;
- 2) categorize wetland community types; and
- 3) locate and characterize waterbodies.

### **1.2 AGENCY CORRESPONDENCE**

Enbridge, Merjent, Inc. ("Merjent"), and Midwest Natural Resources, Inc. ("MNR") met with Barbara Walther of the U.S. Army Corps of Engineers ("USACE") – St. Paul District on April 10, 2013 to discuss the planned survey work, and USACE representatives concurred with the survey protocols (refer to Appendix A).



## 2.0 METHODS

### 2.1 WETLANDS

Field crews conducted wetland surveys in accordance with the criteria and methods outlined in:

- the USACE Wetlands Delineation Manual, Technical Report Y-87-1 (Environmental Laboratory 1987) (“Manual”);
- subsequent guidance documents (USACE 1991a, 1991b, 1992); and
- applicable Regional Supplements to the 1987 Manual.

Merjent, MNR, Verdanterra, LLC (“Verdanterra”), and Stantec Consulting Services, Inc. (“Stantec”) completed a desktop evaluation of available resources to prepare for the survey effort. Data compiled as part of the desktop review included:

- U.S. Geological Survey topographic maps;
- Natural Resource Conservation Service soil survey data;
- U.S. Fish & Wildlife Service National Wetlands Inventory data; and
- recent aerial imagery.

Appendix B includes the map index of the environmental survey corridor, and Appendix C includes the environmental features exhibit used to conduct the desktop review.

Merjent determined antecedent precipitation within each Minnesota county crossed by the environmental survey corridor using the approximate date of the aerial imagery. Merjent evaluated antecedent precipitation with the Precipitation Worksheet using the Gridded Database (Minnesota Climatology Working Group) for the three months prior to the date of photography. The worksheet, which applies the methodology described in Engineering Field Handbook, Part 650: Hydrology Tools for Wetland Determination (U.S. Department of Agriculture-Natural Resource Conservation Service 1997), calculates the multi-month score for the prior three months based on precipitation data. Merjent generated a precipitation worksheet for the mid-point of the environmental survey corridor within each county or county sub-division (refer to Appendix D) and results are summarized in Table 2.1-1. Antecedent precipitation indicated that at the time of aerial photography, Clearwater, Crow Wing, and Polk counties were Dry; Kittson and Marshall counties were Wet; and, Aitkin, Carlton, Cass, Hubbard, Pennington, Red Lake, Saint Louis, and Wadena counties had Normal antecedent precipitation.

Field crews conducted on-site wetland delineations using the three criteria technical approach (i.e., vegetation, soil, and hydrology) as described in the Wetland Field Survey Protocols (refer to Appendix E) and as defined in the 1987 Manual and applicable Regional Supplements. Accordingly, field crews determined an area to be a wetland if under normal circumstances it reflects a predominance of:

- hydrophytic vegetation;
- hydric soils; and
- wetland hydrology (e.g., inundated or saturated soils).

Field crews located and recorded wetland sample points and boundaries using global positioning system (“GPS”) technology. Each wetland feature was given a unique ID as defined by one of two nomenclatures. The first nomenclature was used during the first two years of the survey and is based on county and tract. For the subsequent years, a second nomenclature

was used based on township, section, and range. After data collection, MNR, Stantec, and Verdanterra reviewed, geospatially corrected, and consolidated the data for use in route evaluation and impact analyses.

<b>County</b>	<b>First Prior Month</b>	<b>Second Prior Month</b>	<b>Third Prior Month</b>	<b>Multi-Month Score**</b>
Aitkin	Wet	Normal	Dry	(14) Normal
Carlton	Normal	Normal	Normal	(12) Normal
Cass	Normal	Dry	Wet	(11) Normal
Clearwater	Dry	Normal	Normal	(9) Dry
Crow Wing	Dry	Dry	Wet	(8) Dry
Hubbard	Normal	Normal	Dry	(11) Normal
Kittson	Wet	Wet	Dry	(16) Wet
Marshall	Normal	Wet	Wet	(15) Wet
Pennington	Dry	Normal	Wet	(10) Normal
Polk	Dry	Dry	Normal	(7) Dry
Red Lake	Normal	Wet	Normal	(14) Normal
Saint Louis	Wet	Dry	Normal	13 (Normal)
Wadena	Normal	Dry	Wet	(11) Normal
* Minnesota Climatology Working Group, Precipitation Documentation Worksheet Using Gridded Database – 1981-2010 Normal Period				
** Multi-Month Score: 6-9 (dry), 10-14 (normal), 15-18 (wet)				

## 2.2 WATERBODIES

Field crews identified, classified, and documented waterbodies according to the methodology outlined in the Waterbody Field Survey Protocols (refer to Appendix E) and the Classification of Wetlands and Deepwater Habitats (Cowardin 1979). Field crews located and delineated waterbody boundaries with GPS technology. Each waterbody feature was given a unique ID as defined by one of two nomenclatures. The first nomenclature was used during the first two years of the survey and is based on county and tract. For the subsequent years, a second nomenclature was used based on township, section, and range. Field crews collected the following attributes in the field:

- top of bank width and height;
- ordinary high water mark (“OHWM”) width and height;
- substrate type;
- estimated flow rate; and
- dominant riparian vegetation.

Field crews identified OHWMs, if present, per USACE Regulatory Guidance Letter 05-05. Field crews took photographs at each waterbody to record general conditions at the time of the field survey.

### 3.0 RESULTS

#### 3.1 SURVEY COMPLETION

Field crews conducted wetland and waterbody surveys on 35,685.7 acres of the total 36,664.6-acre environmental survey corridor requiring survey (97.3 percent) in Minnesota. Among the remaining acres, 978.9 acres still require survey, but do not have granted access. An additional 3,835.9 acres no longer require survey because they are no longer part of the survey corridor.

#### 3.2 WETLAND AND WATERBODY SUMMARY

Field crews identified 574 waterbodies and 3,931 wetlands containing 7,698 wetland communities. Table 3.2-1 summarizes the wetland and waterbody features by Cowardin Class and flow regime, respectively. Appendix F includes maps illustrating wetlands and waterbodies by Cowardin Class. Appendix G includes a tabular list of wetland and waterbody features and associated data collected. Appendix H includes the USACE Wetland Determination Data Forms and Appendix I includes photographs of each sampled wetland and waterbody.

County	Feature Category	Total Number of Documented Classes	Number of Wetland Communities and Waterbody Classifications Observed							
			<i>PEM</i>	<i>PSS</i>	<i>PFO</i>	<i>PUB</i>	<i>L1UB</i>	<i>Ephemeral</i>	<i>Intermittent</i>	<i>Perennial</i>
Aitkin	Wetlands	1903	663	552	643	44	1			
	Waterbodies	155						38	62	55
Carlton	Wetlands	1361	479	444	395	43	0			
	Waterbodies	120						37	41	42
Cass	Wetlands	1083	445	244	353	41	0			
	Waterbodies	39						3	15	21
Clearwater	Wetlands	1321	672	263	343	42	1			
	Waterbodies	77						22	30	25
Crow Wing	Wetlands	72	39	7	18	8	0			
	Waterbodies	3						0	0	3
Hubbard	Wetlands	659	342	164	131	22	0			
	Waterbodies	16						2	2	12
Kittson	Wetlands	58	50	0	7	1	0			
	Waterbodies	24						3	19	2
Marshall	Wetlands	240	194	17	28	1	0			
	Waterbodies	56						11	39	6
Pennington	Wetlands	335	207	54	67	7	0			
	Waterbodies	23						1	20	2
Polk	Wetlands	46	33	10	3	0	0			
	Waterbodies	24						1	23	0
Red Lake	Wetlands	270	178	49	32	11	0			
	Waterbodies	20						1	17	2



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Table 3.2-1 Wetland and Waterbody Classification Summary											
County	Feature Category	Total Number of Documented Classes	Number of Wetland Communities and Waterbody Classifications Observed								
			<i>PEM</i>	<i>PSS</i>	<i>PFO</i>	<i>PUB</i>	<i>L1UB</i>	<i>Ephemeral</i>	<i>Intermittent</i>	<i>Perennial</i>	
St. Louis	Wetlands	317	107	104	95	11	0				
	Waterbodies	14						1	3	10	
Wadena	Wetlands	33	16	12	5	0	0				
	Waterbodies	3						0	0	3	
<b>Sub-total Documented Features</b>			<b>3,425</b>	<b>1,920</b>	<b>2,120</b>	<b>231</b>	<b>2</b>	<b>120</b>	<b>271</b>	<b>183</b>	
<b>TOTAL</b>		<b>8,272</b>	<b>7,698</b>					<b>574</b>			

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